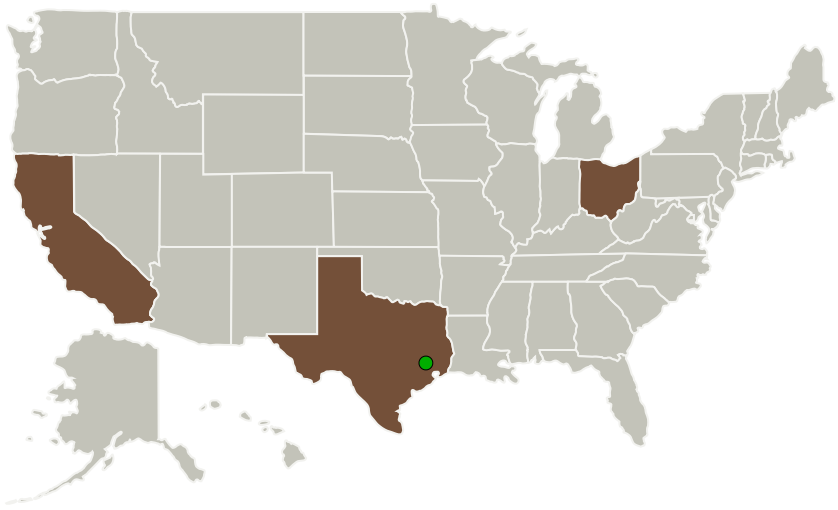
Low Mass/Power Sensor Suite for Spacesuits, Phase I

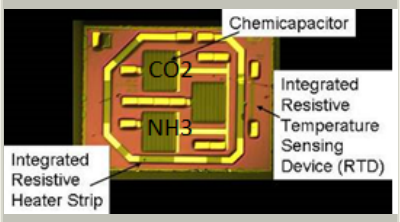
Completed Technology Project (2016 - 2017)

Project Introduction

To provide additional telemetry and data for long-term mission, the composition of internal atmosphere of spacesuits must be determined. Specifically, the unambiguous detection and quantification of carbon dioxide is crucial for mission completion. Detection of other gasses (ammonia, oxygen) is also necessary for a complete sensor suite. Seacoast Science and Case Western Reserve University propose a sensor suite for the sensitive and selective detection of CO2 and other specified gasses. This will be accomplished using Seacoast?s proprietary sensor and the application of specially polymers developed in the laboratory of Professor Rigoberto Advincula. We will develop a microsensor array for atmospheric gases, specifically CO2 and NH3 (Phase I) and integrate it into a compact mission-ready sensor suite. In Phase I the feasibility of developing the proposed system will be demonstrated. In Phase II a further optimized system will be fabricated, tested and delivered to NASA for validation.

Primary U.S. Work Locations and Key Partners





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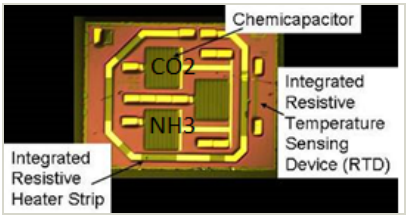
Organizations Performing Work	Role	Type	Location
Seacoast Science, Inc.	Lead Organization	Industry	Carlsbad, California
Case Western Reserve University	Supporting Organization	Academia	Cleveland, Ohio
Johnson Space Center(JSC)	Supporting Organization	NASA Center	Houston, Texas

Primary U.S. Work Locations	
California	Ohio
Texas	

Images



Briefing Chart Image
Low mass/power sensor suite for spacesuits, Phase I
(https://techport.nasa.gov/image/125838)

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
Seacoast Science, Inc.

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

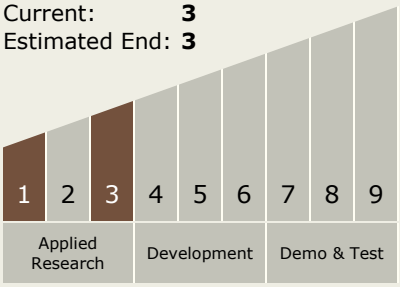
Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Stephen T Hobson

Technology Maturity (TRL)

Start: **1**
Current: **3**
Estimated End: **3**



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Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
  - TX06.2 Extravehicular Activity Systems
    - TX06.2.2 Portable Life Support System

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System